## AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of training a neural network to perform decoding of a time-varying signal comprising a sequence of input symbols, which is coded by a <u>convolutional</u> coder such that each coded output symbol depends on more than one input symbol, ~~characterised~~ <u>characterized</u> by repetitively:

providing a plurality of successive input symbols to the neural network and to the <u>convolutional</u> coder,

comparing the network outputs with the input signals; and

adapting ~~the network~~ parameters <u>of the network</u> to reduce ~~the~~ differences ~~therebetween~~ <u>there between</u>.

2. (Currently Amended) ~~A~~ <u>The</u> method according to claim 1, further comprising supplying the <u>neural</u> network ~~not only~~ with the coded output symbols ~~but also with~~ <u>and</u> at least some of the plurality of successive input symbols.

3. (Currently Amended) A method of encoded communications in which input symbols are convolutionally encoded to provide, for each input symbol, a plurality of output symbols which depend on the input symbol, and the input symbol is transmitted

together with the plurality of output symbols to a <u>neural network</u> ~~decoder~~ <u>for decoding</u>

<u>encoded communications in which received input symbols are convolutionally encoded to</u>

<u>provide, for each received input symbol, a plurality of output symbols which depend on</u>

<u>the input symbol, connected so as to feed back to its inputs at least some of the decoded</u>

<u>symbols it generates at its outputs, wherein at least one of the input symbols is</u>

<u>transmitted to the neural network together with the coded output symbols, and fed to its</u>

<u>inputs together with the fed-back decoded symbols.</u>


4. (Currently Amended) A neural network for decoding encoded communications

in which input symbols are convolutionally encoded to provide, for each input symbol, a

plurality of output symbols which depend on the input symbol, connected so as to feed

back to its inputs <u>at</u> least some of the decoded symbols it generates at its outputs<u>, wherein</u>

<u>at least one of the input symbols is transmitted to the neural network together with the</u>

<u>coded output symbols, and fed to its inputs together with the fed-back decoded symbols.</u>


5. (Cancelled)

6. (Currently Amended) ~~A device~~ The neural network according to claim 4, further comprising a programmable signal processing device programmed to perform ~~said~~ a plurality of neuron computations on a received signal.


7. (Currently Amended) ~~A device~~ The neural network according to claim 4, ~~including~~ further comprising an integrated circuit ~~comprising~~ having a plurality of neuron computation devices operating to perform ~~said~~ neuron computations in parallel.


8. (Currently Amended) A communication[[s]] terminal ~~device~~ operable to communicate selectively over a communications channel in a plurality of different communications modes, comprising a data processing device for processing time-varying signals, said data processing device being arranged to implement ~~a~~ the neural network according to claim 4.


9. (Currently Amended) ~~A device~~ The communication terminal according to claim 8, wherein the communications terminal device is operable to add a new communication[[s]] mode by receiving new ~~said~~ parameter values via said communication[[s]] channel.

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10. (Currently Amended) A communication[[s]] station for use in a system including a the communication terminal according to claim 9, the station comprising means for transmitting a signal comprising the new parameter values for neural computations, to add a new communication[[s]] mode to said device̶communication terminal.